Reaction of Trifluoromethanesulfonamide with Alkenes and Cycloocta-1,5-diene under Oxidative Conditions. Direct Assembly of 9-Heterobicyclo[4.2.1]nonanes

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Abstract—Reactions of trifluoromethanesulfonamide with α-methylstyrene, 2-methylpent-1-ene, and cycloocta-1,5-diene in the system *t*-BuOCl–NaI were studied. In the reaction with α-methylstyrene 1-iodo-2-phenylpropan-2-ol was the only isolated product. The reaction with 2-methylpent-1-ene gave a mixture of *N*,*N*′-(2-methylpentane-1,2-diyl)bis(trifluoromethanesulfonamide), trifluoro-*N*-(2-hydroxy-2-methylpentyl)-methanesulfonamide, and *N*,*N*′-[oxybis(2-methylpentan-2,1-diyl)]bis(trifluoromethanesulfonamide). Trifluoromethanesulfonamide reacted with cycloocta-1,5-diene to produce a mixture of 2,5-diiodo-9-(trifluoromethylsulfonyl)-9-azabicyclo[4.2.1]nonane and 2,5-diiodo-9-oxabicyclo[4.2.1]nonane; this reaction may be regarded as the first example of direct assembly of bicyclononane skeleton.

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